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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

JUNTIMA, NITTAYA

ART UNIT	PAPER NUMBER
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2663

DATE MAILED: 03/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/920,053	Applicant(s) JAENICKE, PETER	
	Examiner Nittaya Juntima	Art Unit 2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 10-13 is/are rejected.
- 7) ☒ Claim(s) 7-9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to because the textual references in Figs. 1-6 require legends. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The abstract of the disclosure is objected to because it contains legal phraseology. Correction is required. See MPEP § 608.01(b).

Claim Objections

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3. Claims 1, 2, 5, 7, 10, and 12 are objected to because of the following informalities:

- in claim 1, ll 2, “a plurality of slave modules levels” shall be changed to “a plurality of slave modules located in a plurality of levels,”;

ll 3, “said modules” should be changed to “said master and slave modules” to make the claim more clear;

ll 5, “module” should be removed;

- in claim 2, ll 5, “the” should be deleted;

ll 7, “the preceding level” should be changed to “preceding levels”;

ll 9, “the” should be changed to “a”;

- in claim 5, ll 2, “the module on the preceding level” should be changed to “a module on a preceding level”;

ll 3, “the” should be changed to “a”;

- in claim 7, ll 2, “the” should be changed to “a”;

ll 4, “, or vice versa” should be removed or replace with a more specific limitation to avoid confusion or possible misinterpretation;

- in claim 10, ll 4, “the” should be changed to “a”;

- in claim 12, ll 1, “have” should be changed to “having”;

ll 2, “which can” should be changed to “can also” and “which” should be changed to “, and are”;

ll 3, “spurline” should be changed to “spur line” to put the claim in a better form.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2, the limitation “the preceding steps” in line 11 of the claim lacks antecedent basis. The office is treating the limitation as “the sending and the setting steps.”

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 4-6, 10, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Newhall et al. (“Newhall”) (USPN 5,682,479).

Regarding claim 1, as shown in Fig. 16, Newhall teaches an implemented network topology with at least one master module (the originating router, e.g. 204A, see also col. 13, ll 39-44) and a plurality of slave modules (routers that receive vector-routed packet sent from the originating router, e.g. routers 204C, 204B, 204E and a target router 204, col. 18, ll 42-47) located in a plurality of levels (N-tier, Fig. 12, col. 15, ll 11-49), said slave modules having at least two bi-directional connection interfaces (ports 1-5 of nodes 204, see also Fig. 10 and col.

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12, ll 38-col. 13, ll 7), said modules (the originating router and routers that receive vector-routed packet sent from the originating router) being flexibly networked in a physical point-to-point connection in an arbitrary network topology (col. 12, ll 21-31) and each having a unique identification data item (configuration information including connectivity information, i.e. what devices connected to each of the router ports, col. 11, ll 13-21, Fig. 10 and col. 12, ll 38-col. 13, ll 7, and col. 14, ll 1-8). Newhall further teaches a method comprising:

Said master module (the originating router, e.g. 204A) gradually requesting the identification data (configuration information) of each level of the slave modules connected to this master module (the originating router, e.g. 204A, implements a network exploration process which uses vector routing decisions based on the configuration information obtained in a previous iteration to route a vector packet to a target router at each level, Figs. 11-13, col. 13, ll 19-col. 16, ll 39) by using said slave modules' connection interfaces (egress ports) to transmit messages (vector-routed packets 1300, Fig. 13, col. 16, ll 11-30) containing information ((i) a head vector field 1312A of the vector packet specifying an egress port to be used to forward the packet and (ii) an ingress port specified at the end of the vector fields of the vector packet, Fig. 17) about which connection interface is to be used to forward the respective message, said information being altered (modified) upon forwarding of each message such that a description of a return path (return-routing information) through the network is automatically set up, each identification data item explored being returned to the master module via this return path using the respective message. See col. 17, ll 61-col. 19, ll 15, Figs. 18-19, and also Figs. 14-15, col. 16, ll 40-col. 17, ll 45 and claims 1-3.

Regarding claim 4, Newhall further teaches that each identification data item (configuration information including connectivity information, i.e. what devices connected to each of the router ports, col. 11, ll 13-21, Fig. 10 and col. 12, ll 38-col. 13, ll 7, and col. 14, ll 1-8) comprises the module type (the revision number of the router, col. 13, ll 4) and a unique serial number (router ID, col. 13, ll 4).

Regarding claim 5, Newhall teaches that to alter a message when forwarded by a module on a preceding level, the respective message is only received in full and is only forwarded when a prescribed transmitting connection interface is free (the egress port of each router on a preceding level, e.g. routers 204C, B, and E, on which the vector packet 1300 is transmitted must be available in order for the vector packet 1300 to be transmitted successfully). See col. 17, ll 61-col. 18, ll 38, see also Fig. 14.

Regarding claim 6, Newhall also teaches that a different message type is used for messages sent by a master module (vector-packets 1300 with empty data field 1316, Fig. 13, transmitted from originating router, e.g. router 204A in Fig. 16, to a target router, e.g. when a target router 204 in Fig. 16, col. 17, ll 65-col. 18, ll 50) than for messages (vector-packets 1300 returning from a target router to the origination router with configuration information included in the data field, col. 17, ll 39-col 19, ll 15) which are to be received by a master module. See also Fig. 11.

Regarding claim 10, Newhall further teaches that messages (vector-routed packets, Fig. 13) are used for detecting the network topology (network exploration, Fig. 9, col. 11, ll 13-30), while subsequent data interchange (subsequent transmission of messages using node pair addresses from router table, col. 11, ll 41-48) takes place between modules (node pair, e.g.

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origination node and target node) using subscriber addresses (node pair addresses, col. 11, ll 41-48 and col. 20, ll 14-28) associated with the respective modules (node pair, e.g. origination node and target node), with subscriber addresses being assigned during network detection to a detected module (an explored router) by a master module (origination node) as part of a message (vector-routed packet 1300). See col. 11, ll 41-48 and col. 20, ll 14-28.

Regarding claim 13, Newhall further teaches the use (Fig. 25) of the method according to claim 1 for exchanging arbitrary information (information inherently included in a packet as data being routed to destination) between modules (originating node and destination node) which are flexibly networked in an arbitrary network topology in a physical point-to-point connection, wherein each module can send and receive messages, and each message (a packet shown in Fig. 22, col. 22, ll 60-col. 23, ll 9 must contain data to be exchanged) contains the information which is to be exchanged. See col. 24, ll 66-col. 25, ll 29, and also rejection claim 1.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Newhall et al. ("Newhall") (USPN 5,682,479) in view of Suzuki (USPN 5,796,736).

Regarding claim 2, as shown in Fig. 11, Newhall further teaches that:

- Carrying out a constant check at each connection interface of each module to

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determine connection to another module (the carrying out step must be included to detect a network fault or a change in the network configuration, col. 11, ll 49-65).

- Each master module (the originating router) sending a message (a vector-routed packet 1300, Fig. 13, col. 16, ll 11-30) to each module (a next higher tier node) on a next highest level requesting that connection interfaces configuration (configuration information including number and identify of ports, col. 11, ll 13-21, Fig. 10 and col. 12, ll 38-col. 13, ll 7, and col. 14, ll 1-8) and associated identification data (connectivity information, i.e. what devices connected to each of the router ports, col. 11, ll 13-21, Fig. 10 and col. 12, ll 38-col. 13, ll 7, and col. 14, ll 1-8) be returned. See col. 13, ll 19-col. 15, ll 10.

- The respective message (a vector-routed packet 1300, Fig. 13, col. 16, ll 11-30) containing information (information specified in a head vector field 1312A) about which connection interface (egress port) the modules on preceding levels are to use to forward the messages. See Figs. 16-17, col. 17, ll 61-col. 18, ll 50, and also Fig. 14.

- Setting up automatically a description of the return path (return-routing information) to the master module (the originating router) by virtue of each message being altered (modified) upon forwarding by a module on a preceding level by entering into the respective message which connection interface (an ingress port which the vector packet 1300 entered a router is specified at the end of the vector fields of the vector packet) was used to receive the message. See Figs. 16-17, col. 17, ll 61-col. 18, ll 50, and also Fig. 14.

- Repeating the sending and setting steps recursively for each next highest level of modules until all the modules have been identified (step 1120, Fig. 11, see also Fig. 12).

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However, Newhall fails to teach that the step of carrying out reciprocal interchange of the respective identification data.

In an analogous art, as shown in Fig. 4, Suzuki teaches the step carrying out reciprocal interchange of the respective identification data (the respective node address) between SW2, Fig. 3 and its neighbors (col. 7, ll 36-63, see also Abstract).

Given the teaching of Suzuki, it would have been obvious to one skilled in the art at the time the invention was made to include the step of carrying out reciprocal interchange of the respective identification data as recited in the claim. The motivation/suggestion to do so would have been to enable each node to recognize the physical connection relationships of each node within the network as taught by Suzuki (Abstract).

Regarding claim 3, Newhall further teaches that each slave module receives a request from a master module to return the message additionally returns a data item (configuration information) via the connection interface (an ingress port which the vector packet 1300 entered a router now becomes an egress port when returning the packet to the originating router) which is used to transport back the message, said additional data item not being altered when forwarded by other modules. See steps 1114-1116 of Fig. 11, and Figs. 16-19, col. 18, ll 39-col. 19, ll 15.

9. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Newhall et al. ("Newhall") (USPN 5,682,479) in view of an admitted prior art (paragraph 0002 of the specification).

Regarding claim 11, Newhall does not explicitly teach a numerically controlled industrial processing machine having a numerical controller as master module and a plurality of electrical drives as slave modules.

However, the admitted prior art teaches a numerically controlled industrial processing machine having a numerical controller as master module (a central location) and a plurality of electrical drives as slave modules (local drives). See paragraph 0002 of the specification.

Given the teaching of the admitted prior art, it would have been obvious to one skilled in the art at the time the invention was made to modify the teaching of Newhall to include a numerically controlled industrial processing machine having a numerical controller as master module and a plurality of electrical drives as slave modules as such modification only involves a different field of use and mere routine skill in the art.

10. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Newhall et al. ("Newhall") (USPN 5,682,479).

Regarding claim 12, Newhall fails to teach that modules having only one connection interface and are located on a spur line end that can also be used to receive and send messages.

The office notice is taken that there are modules, e.g. end system, having only one connection interface and are located on a spur line end that can be used to receive and send messages in a network.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the teaching of Newhall to include modules having only one connection interface and are located on a spur line end can also be used to receive and send messages as long as such modification does not yield any unexpected results, and such modification involves only routine skill in the art.

Allowable Subject Matter

11. Claims 7-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Oliva et al. (USPN 6,654,802), disclosing a system and method for continuously monitoring neighboring network nodes and determining physical connection topology and changes in topology among network nodes.

- Judd et al. (USPN 5,465,251), disclosing the path address to destination node and a method of configuring a network in which one or more initiator nodes are defined, the initiator nodes issuing query messages to an adjacent node which responds by sending the initiator details of the number of operational ports which are implemented in the adjacent node.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nittaya Juntima whose telephone number is 571-272-3120. The examiner can normally be reached on Monday through Friday, 8:00 A.M - 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nittaya Juntima
March 1, 2005

NJ

Ricky Ngo
RICKY NGO
PRIMARY EXAMINER

3/2/05